

OPERATION MANUAL & INSTALLATION INSTRUCTION

Chain hoist controller from (4-way to 8-way)

- EN60065
- EN60950
- EN60204-1
- EN55103-1



► Thanks for choosing TBM chain hoist controller.

► These instruction manual must be read carefully before installing and putting the chain hoist into operation.

► We assume no liability for any damage and malfunctions resulting from failure to comply with the operating instructions.

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1.1 General Information

- ▶ TBM will not be liable for any damage or loss caused by natural disaster, other accidents or operating errors in appropriate use.
- ▶ TBM will not be liable for any damage and loss resulting from non-compliance with instruction manual.
- ▶ TBM will not be liable to supply spare parts for the products for which it has passed for 10 years since the discontinuation of the product.
- ▶ TBM shall not be liable for any damage or loss caused by the combination of the product with other equipment in which TBM is not concerned.



Caution

- The instruction manual must be read carefully before installing and putting the chain hoist into operation.
- We assume no liability for any damage and malfunctions resulting from failure to comply with the instruction manual. Operator entrusted with this work must know the installation and read before operating the machine.

1.2 Term

Remote control

Which control pendant connect to chain hoist controller with emergency stop and start button
Need to adjust "UP" and "Down" on the controller.

Digital remote control

Which control pendant connect to chain hoist controller with emergency stop and start button
Can adjust "UP" and "Down" on the control pendant.

Wireless remote control

Which control pendant connect to chain hoist controller with emergency stop and start button
can adjust "UP" and "Down" on the controller and without cable.

Main power cable

Which power cable connect the chain hoist controller and the power input.

Hoist extender cable

Which power cable connect the hoist and chain hoist controller.

1.3 Limitation of Using

All TBM chain hoist controller are designed to use with TBM electric chain hoist, but it also can work with other brands of direct control electric chain hoist if in same condition (voltage, plug & socket, etc)

We are not responsible for the conjunction using of TBM chain hoist controller and other brand electric chain hoist in wrong condition.

1.4 Warranty

We assume the warranty for the operating instruction being developed in accordance with the general technical and functional parameters of the delivered technical product.

We don't assume any warranty for defects and damages, which are caused due to operating errors nonobservance of the operating instruction including maintenance not performed according to this manual.

Warranty replacements and repairs are carried out only on chain hoist controller used as intended and subjected to proper inspection and maintenance as specified in this manual.

In addition, warranty replacement and repairs do not include:

- ▶ incorrect transportation;
- ▶ Incorrect assembly;
- ▶ Improper usage;
- ▶ Improper repairs;
- ▶ Improper use time over ISO/FEM class operating times;
- ▶ Wrong connection of voltages not include in this manual;
- ▶ Improper inspected and maintained according to the provisions of this manual;
- ▶ Events of disaster caused by foreign bodies or by force majeure;
- ▶ Damaged due to not using original spare parts;
- ▶ Excessive heat and outdoor use without appropriate measures ;
- ▶ Arbitrary do modifications or adjustment at the machine or parameter in this manual.



Caution

- The warranty lasts 12 months from the date of delivery stated on the documentation certifying the purchase of new machines. Warranty repairs do not renew or extend the warranty period.
- The warranty does not includes the cost of transporting the goods and travel expenses TBM has the final interpretation right.

2.1 Safety Symbols



Forbidden

Things forbidden to do.

Forbidden things indicated by words or images near the symbols.



Mandatory

Things must be done.

Obliged things indicated by words or images near the symbols.

The instruction manual must be read carefully before installing and putting the chain hoist into operation. We assume no liability for any damage and malfunctions resulting from failure to comply with the instruction manual. Operator entrusted with this work must know and comply with the safety regulations and the instruction manual. These symbols and instructions are used to warn against potential safety hazards or causes of damage or provide useful information.

▼ 2.1.1 Symbols Description



Danger

Any failure to comply with these instructions will result in danger to life and limb or great loss.



Warning

Potential hazard, any failure to comply with these instructions may result in danger to life and limb or great loss.



Caution

Potential hazard, any failure to comply with these instructions may result in slight danger to life and limb or some loss.

It indicates all warnings which it is, if not complied with, may result in danger to life and limb. The Instruction manual must be available to the operator at all times.

▼ 2.1.2 Other Signals



Dangerous Voltage

This symbol marks touching electricity can cause serious injuries or death, only electrical authorized personnel is allowed to open the hoist.



Dangerous Floating loads

This symbol marks floating loads or using hoist machines can cause serious injuries or death, must be used under people observation.



Use hard hat

This symbol marks in the operation or using hoist machines can cause serious injuries of head, must be used under people observation.



Remove power plug before opening

This symbol marks in the before operation or using hoist machines the electric device from the power network is required to remove, avoid danger voltage accidents.

2.2 Prohibitions



Forbidden

- DO NOT expose the controller to an aggressive atmosphere.
- DO NOT use in conflagration, explosive danger or corrosive gases.



- DO NOT use the controller if it is in bad condition.
- DO NOT use the controller if the power cable or control cable was damaged.
- DO NOT connect to unknown power output.
- DO NOT open the controller as the system is under power.
- DO NOT subject the controller to brutal shocks.
- DO NOT connect electric chain hoist with different specifications (For example, the hoist controller is 380V but the electric chain hoist specification is 230V).
- DO NOT use the controller if it is not connected completely.
- DO NOT use the controller out door without any protection.
- DO NOT modify the spare part in controller without permission.



- DO NOT approach the chain when the hoist machine is working.
- DO NOT use the hoist machine if the chain is twisted.
- DO NOT use suspended load over that the rate capacity of the hoist.
- DO NOT use the hoist if damaged before installation.
- DO NOT weld or modify on any parts of chain.
- DO NOT use screw bolt, screw driver or other tools to twist, short the chain.
- DO NOT move or swing the suspended load.
- DO NOT transport person.
- DO NOT suspend the load on the pointed end of hook.
- DO NOT use the safety components as operation components (For example Emergency stop, fuse...etc)

2.3 Safety Instructions for Installation



- DO NOT use the hoist if damaged before installation.
- Ensure only authorized personnel who acknowledge with the installation/connection/operation hoist machine in the installation area.
- Ensure the anchor point or suspension point is designed and set up properly.
- Choose correct hoist machine to ensure the rated capacity can satisfy the suspended load.
- Ensure each hoist is an exact vertical position to the load and the load chain is unobstructed before operating the controller.



- Ensure all personnel in the installation area wear proper personal protective equipment like: Hard Hat, Safety Shoes, Safety Clothing...etc.
- Ensure only authorized personnel who acknowledge with the installation/connection/operation hoist machine can operate the chain hoist controller.



Mandatory

- After installation, the hoist controller needs to be regularly inspected and maintained according to the inspection in this manual.
- The instruction manual must be read carefully before installing and putting the chain hoist into operation.
- All the safety instructions must be fully understood by installer.

2.4 Safety Instructions for Connection



- DO NOT connect a unknown power supply.
- DO NOT connect hoist controller if the power cable or control cable are damaged.
- Before connecting the hoist controller to electric power, check the specification with the hoist is satisfy the voltage and power line in the installation area.
- Ensure the grounding system is working for protection.
- Ensure there has independent identification with power cable/control cable in order to connecting correct channels on the controller.
- DO NOT modify the values and adjustments of the safety.
- If the hoist working direction is different from the UP/DOWN indicators with the controller, please check intermediary cabling and change phases by means of phase reverse facility in the CEE plug at the main power cord.
- Never connect more hoists over than the available numbers channels on the controller.
- If the hoist direction doesn't match with the indication on the controller, don't change phases inside the controller but check the hoist extender cables or the individual hoist power cables.
- Shut off or disconnect the power/control plug before any inspection or maintenance.



Danger

- Ensure only authorized personnel who acknowledge with electrical connection to chain hoist controller can do operation.
- DO NOT use hoist power plug directly to the power outlets.

2.5 Safety Instructions for Operation



- Before operation, check if the load is correctly connected with the hook and fastened.
- Clear the area and people and switch working lights on before operating the controls.
- No people are allowed to under the load.
- Ensure the operator always remains alert to avoid emergency situation.
- Once emergency situation happened, press the emergency stop button immediately. It will inactivate all functions of the control.
- DO NOT distract the operator's attention while operating with the control system.
- DO NOT use hoists are running opposite direction of selected direction on controller.
- DO NOT use the controller for a purpose which is not intended.
- DO NOT change the operating direction while the START button is pressed.
- DO NOT operate the controller if the operator's physical condition does not allowed..
- DO NOT pressed the START button too frequently, keep long press to go UP and DOWN. (The hoist motor will be fast heated by frequently press up and down, even overheating and damaged)



Mandatory

- Operators must have practical experience and theoretical knowledge in relevant operations.
- The operators must have full views during hoist operation.
- All the safety instructions for operation must be fully understood by operator.



Warning

- Ensure the moving of the suspended load is steadily.
- Ensure only authorized personnel who acknowledge with the installation connection/operation hoist machine in the lifting operation area.

2.6 Safety Instructions for Storage and Transport

- Electric chain hoists and controllers for a mobile usage should be stored and transported in containers like flight case or original packing.
- At the time of the first delivery, ensure the packing is not damaged.
- Avoid frequent vibrations and impacts during transportation.
- Ensure the inside container has sufficient space for chain hoist controller.
- Ensure the storage environment temperature of the packing is between -20°C and 50°C.
- Maintain proper ventilation to avoid moisture.
- In situations where an chain hoist controller is not required, ensure it in a container or original packing.
- When chain hoist controller is not needed, ensure the surface of the controller body is clean and dry in order to prevent aging of electrical components caused during storage.

3. PRODUCT INFORMATION

3.1 Product Overview

▼ 3.1.1 Product Outline

Channel:	4-CH/6-CH/8-CH
Voltage:	380-415V-50Hz-3ph
Control Voltage:	DC or LVC 24V
Voltage Drop:	±10%
Classification:	IP67
Operation Temperature:	-20°C - +50°C
Operating Humidity:	≤85%



Forbidden

- Do not use in conflagration, explosive danger or corrosive gases.
- Do not handle melting metal, poisonous, flammable or explosive objects.
- Do not use in acid, salty or dusty environment.



Mandatory

- Product operating outdoors should be provided with a cover for protection against rain and snow or kept under shelter.
- Only Manufacturer and authorised representative can make modifications to chain hoist controller.

▼ 3.1.2 Product Code



BCSC-4LV

BC: BASIC CONTROLLER

DC: DIGITAL CONTROLLER

WL: WIRELESS CONTROLLER

RF: RACK FRAME

SC: SUITCASE

FC: FLIGHT CASE

4/6/8: 4/6/8 CHAIN HOIST LV: LOW VOLTAGE CONTROL

▼ 3.1.3 Panel indication

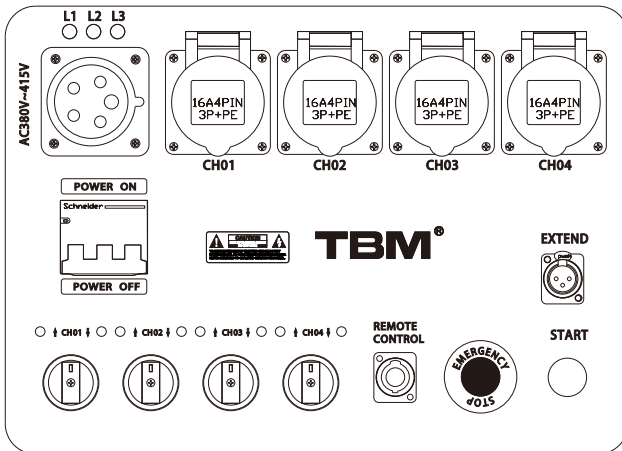


Figure 3.1.1

The panel is made by iron plate and include below information(see Figure 3.1.1):

- Brand Logo.
- Electricity warning.
- Suggest Voltage.
- L1/L2/L3 phase lighting.
- Input plug
- Output socket
- Twist button
- START button.
- EMERGENCY button
- Remote control socket.
- Controller extend socket

▼ Information for basic controller(suitcase)

Model	Channel	Length	Width	Height	Max Power	Net weight
BCSC-4	4-way	420mm	340mm	180mm	12kW	8kg
BCSC-6	6-way	507mm	402mm	190mm	14kW	10kg
BCSC-8	8-way	507mm	402mm	190mm	18kW	12kg

- Above parameter is only for 380V~415V/50HZ/3PH standard.
Other than 4/6/8 way chain hoist controller also available.

▼ Information for basic controller(rack frame)

Model	Channel	Length	Depth	Height	Max Power	Net weight
BCRF-4	4-way	484mm	350mm	132mm(3U)	12kW	12kg
BCRF-8	8-way	484mm	350mm	176mm(4U)	18kW	16kg

- Above parameter is only for 380V~415V/50HZ/3PH standard.
Other than 4/6/8 way chain hoist controller also available.

▼ Information for digital controller(suitcase)

Model	Channel	Length	Width	Height	Max Power	Net weight
DCSC-4	4-way	520mm	415mm	375mm	11kW	14kg
DCSC-8	8-way	660mm	500mm	367mm	15kW	26kg

- Above parameter is only for 380V~415V/50HZ/3PH standard.
Other than 4/6/8 way chain hoist controller also available.

▼ Information for wireless controller(suitcase)

Model	Channel	Length	Width	Height	Max Power	Net weight
WLSC-4	4-way	490mm	380mm	170mm	8kW	12kg
WLSC-8	8-way	506mm	402mm	215mm	12kW	17kg

- Above parameter is only for 380V~415V/50HZ/3PH standard.
Other than 4/6/8 way chain hoist controller also available.

▼ 3.1.4 External power cable and control cable

Hoist Model	Cable Type	Cable Size	Type	Configuration
TS1(DC) TS2(DC&LVC) TS3(DC&LVC)	External Power Cable	4x1.5mm ²	Plug/Socket	CEE4P 16A 6h 380~415VAC 3PH+G
				CEE4P 16A 9h 220~230VAC 3PH+G
TS2(LVC) TS3(LVC)	External Control Cable(LVC)	4x1.5mm ²	Plug/Socket	CEE4P 16A 4h 24VAC 3PH+G

The wiring of the plug and sockets are following IEC 60309 standard sequences as below:

The wiring of the power plug (DC and LVC)

Part	Wiring Colour	Indication
L1	Brown	3 Phase line
L2	Black	3 Phase line
L3	Grey	3 Phase line
PE	Green or Yellow	Protective Earth

(See Figure 3.1.5.1)

The wiring of the control sockets (LVC)

Part	Wiring Colour	Indication
L1	Brown	Common 24VAC
L2	Black	Up
L3	Grey	Down
PE	Green or Yellow	Protective Earth

(See Figure 3.1.5.2)



Figure 3.1.5.1 Plug



Figure 3.1.5.2 Socket

The plug(DC and LVC) and sockets(LVC) are made of PC/ABS material with max to IP67 protection, Regular is IP44,if have requirement please contact factory for more details.



Warning

- Ensure the power cable or control cable should be connected with plug or socket properly, pin to pin(L1-L1,L2-L2,L3-L3,PE-PE) otherwise the electric chain hoist will not work as intended using.
- Ensure the screw cap of plug&socket is tightened.
- Due to the reverse connection of the phase sequence, the electric hoist is lifted and lowered in reverse. It is recommended to change the phase sequence under professional guidance of the manufacturer.

3.2 Operation Description

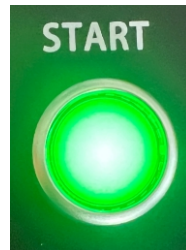
1. Measure the main power supply to make sure the operating voltage and phases are correct. Once the controller was connect the correct power supply and correct phase, 3 LED light of L1,L2,L3 will light up like below photos, if the phase wrong then one of the LED will not light up, then please check the main power supply is missing phase.



2. Check if the emergency button is fixed, if yes, Release the emergency button by turning it clockwise.



3. Connect the controller to the power supply and power on the main switch, then the START button will be light up.

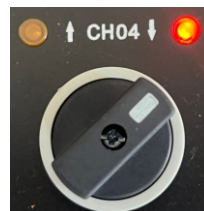


4. Connect the hoist to controller through hoist extender cable if you want operate more channels with one START button.

5. Check the "UP" "DOWN" twist switch is at middle position and the LED is not light up.



6. Select the twist switch to "UP" or "DOWN" direction, the LED will light up, UP is yellow light, DOWN is red light.



7. Select the twist switch according to the hoist that needs to be used. And press the START button for 2 seconds to ensure the hoist has power and the hoist running direction is correct match the selected direction on the controller.
8. Press the START button to activate all hoists, and hold the button until the hoist lift at expected height position. DO NOT operate the controller in staccato, this wrong operate way can damage both controller and hoist.

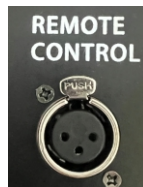
9. Push the Emergency stop if there has unexpected case happened, the controller and hoist will stop immediately.



10. In case more hoist need to be operated that the controller allows, you can prepare a new controller with more channels or you can connect to other controller with the link cable (separate provide) through the "EXTEND", for extra controller was connecting, ensure the main switch of each is on and connect to main power supply, otherwise the extend controller can't work as expected.



11. In case the operator wants to use the controller in remote, you can connect a control pendant (separate provide) through the "remote control", the control pendant works as a START button and Emergency stop only.

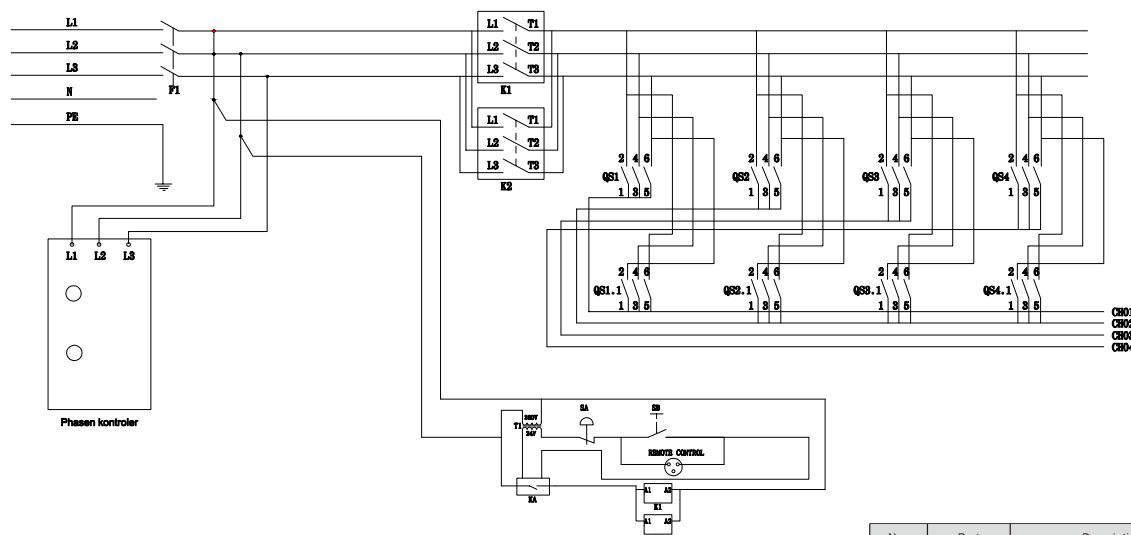
**Danger**

- Ensure only authorized personnel who acknowledge with electrical connection to chain hoist controller can do operation.
- NEVER change the running direction of the hoist when the START button is pushed.
- NEVER use cables and connectors which are in bad conditions.

3.3 Wiring Diagram

▼ 4-CH chain hoist controller(basic type)

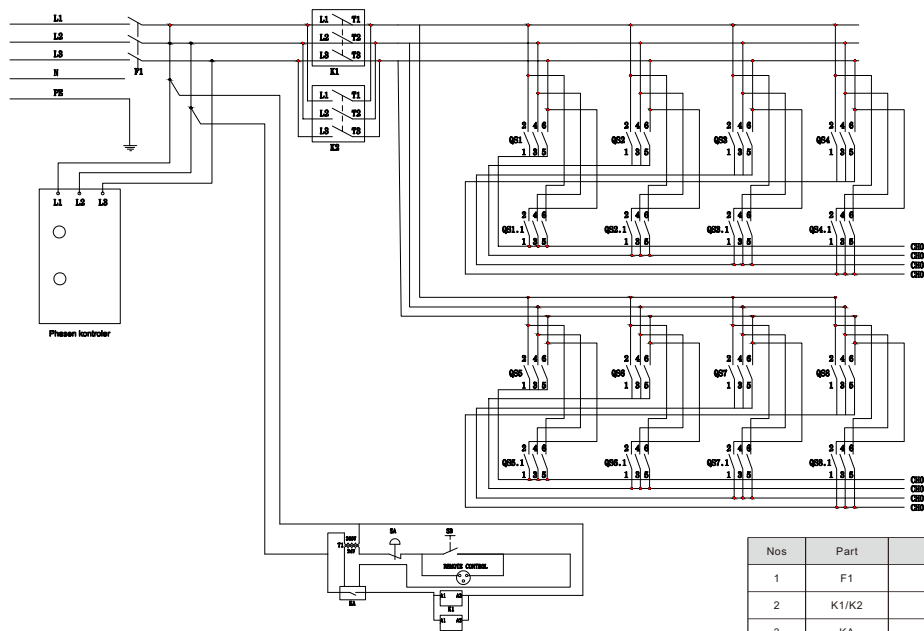
Voltage:380~415V-50HZ-3PH



Nos	Part	Description
1	F1	Circuit Breaker
2	K1/K2	Contactor
3	KA	Intermediate Relay
4	T1	Transformer
5	SA	Emergency Stop
6	SB	START Button
7	QS1-QS4	Twist Switch

▼ 8-CH chain hoist controller(basic type)

Voltage:380~415V-50HZ-3PH



Nos	Part	Description
1	F1	Circuit Breaker
2	K1/K2	Contactor
3	KA	Intermediate Relay
4	T1	Transformer
5	SA	Emergency Stop
6	SB	START Button
7	QS1-QS8	Twist Switch

4. Trouble Shooting

Problem	Cause	Solution
The controller doesn't have respond	Cables and connection in bad condition	Change new cable and connect properly
	Phase failure,one the LED of L1,L2,L3 is missing	Change phase with the main power cable and measure the power supply
	Power supply is off	Switch "on" the power supply
	Control circuit breaker is switched off	Switch "on" the breaker
	Main switch is off	Switch "on" the main switch
	Emergency stop button is activated	Turn button clockwise to release
	Environmental temperature is high	Place the controller in a cooler/warmer surrounding
	There is too much resistance in one of the connectors	Measure the resistance in Ohm's of the connectors
The hoist not working once push the "START" button	Cables and connection in bad condition	Change new cable and connect properly
	Power supply is off	Switch "on" the power supply
	Main switch is off	Switch "on" the main switch
	Emergency stop button is activated	Turn button clockwise to release
	There is too much resistance in one of the connectors	Place the controller in a cooler/warmer surrounding



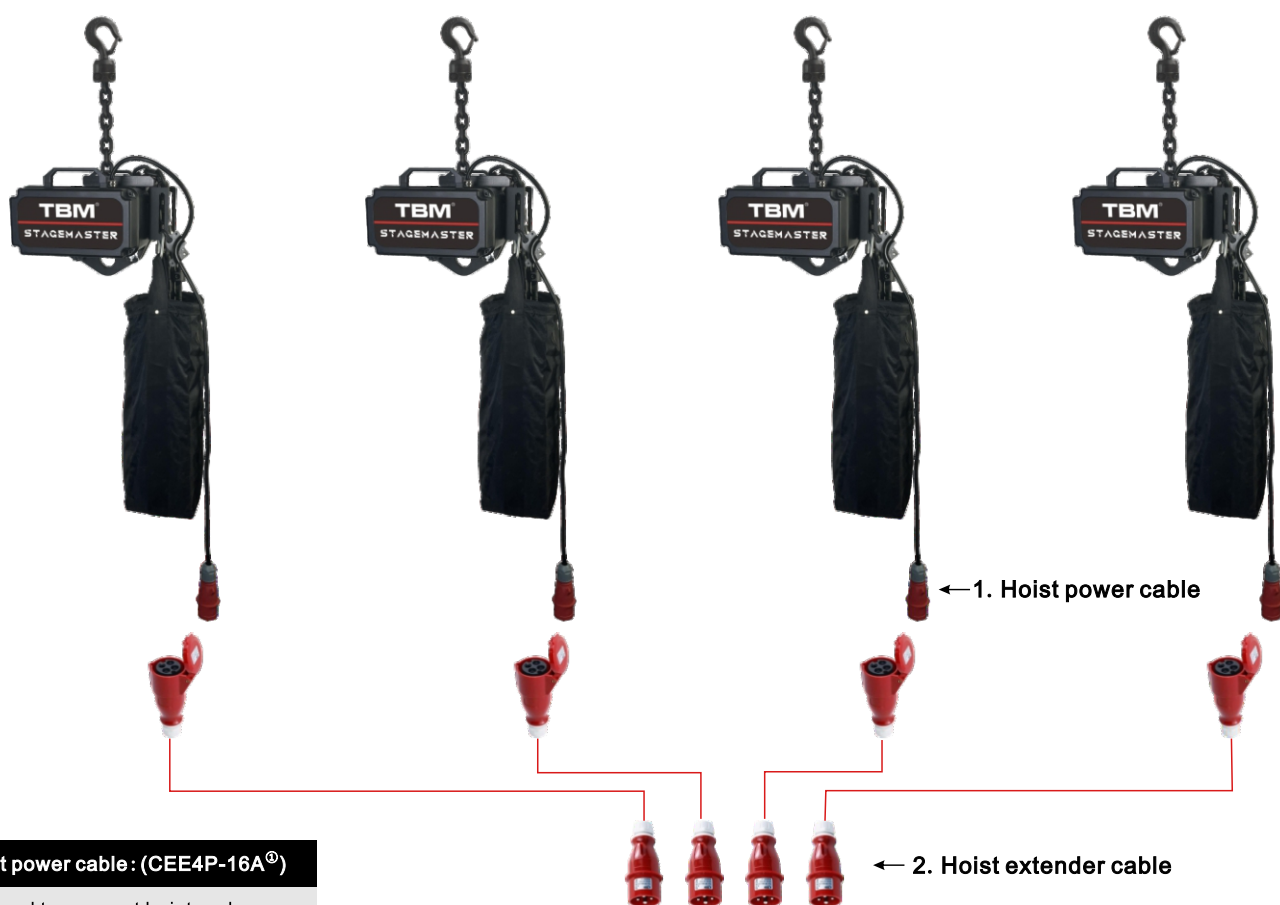
Mandatory

- Ensure only competent personnel can do trouble shoot.
- If there has problem not mention in above sheet,please contact factory for more details..

5.USING CASE

5.1 Chain Hoist Set Up

DIRECT CONTROL SET UP(380~415V)



1. Hoist power cable : (CEE4P-16A[®])

To be used to connect hoist and power system.

2. Hoist extender cable : (CEE4P-16A)

To be used to extend connect between hoist and control.(Provide separately)

3. Power cable : (CEE5P-32A[®])

To be used to connect between control and power system.(Provide separately)

4. Basic Controller:

To supply power and control to hoist.

5. Control pendant:

To supply optional control with "Go" . (Provide separately)

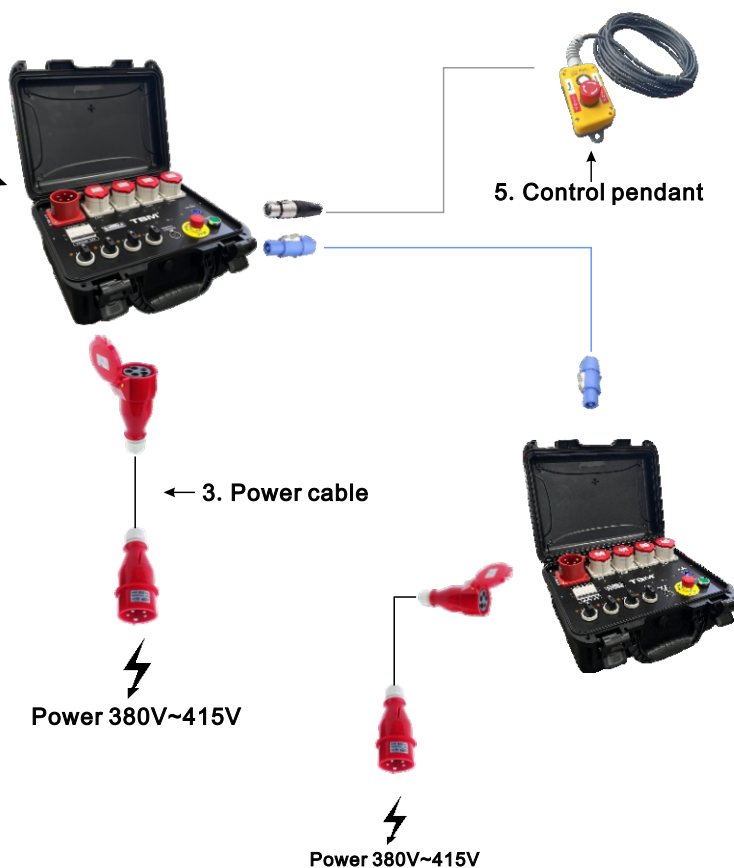
4. Basic Controller

5. Control pendant

①:CEE 16A 6h 380~415VAC 3PH+G



②:CEE 32A 6h 380~415VAC 3PH+G+N



DIRECT CONTROL SET UP(380~415V)



1. Hoist power cable : (CEE4P-16A®)

To be used to connect hoist and power system.

2. Hoist extender cable : (CEE4P-16A)

To be used to extend connect between hoist and control.(Provide separately)

3. Power cable : (CEE5P-32A®)

To be used to connect between control and power system.(Provide separately)

4. Digital Controller:

To supply power and control to hoist.

5. Digital Remote control :

To supply a optional remote "up" and "down" control(Provide separately)

①:CEE 16A 6h 380~415VAC 3PH+G



②:CEE 32A 6h 380~415VAC 3PH+G+N



4. Digital Controller



5. Digital Remote control



← 3. Power cable

⚡
Power 380V~415V



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